PLAINS FORESTER

FOREST SERVICE LINCOLN, NEBRASKA

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SPACING STANDARDS

The spacing standards of the Prairie States Forestry Project have probably been under more constant fire than any other of its recommendations, and all members of the organization, but especially District and Subdistrict Officers, are constantly under pressure to defend them. To furnish field-going officers with additional ammunition to justify and defend these recommendations, I recently prepared, with the help of Mr. Olson, a spacing circular. PLAINS FORESTER staff believes others on the Project may be interested in this material. Lack of space prohibits covering the subject completely here so the salient points are briefed; however, if anyone is interested in the complete circular the Nebraska State Office will be glad to forward copies as long as the mimeographed supply lasts.

Spacing of trees planted in the Great Plains Region has been a much discussed subject for a number of years and probably always will be somewhat controversial. U. S. Department of Agriculture Technical Bulletin No. 496 sums up results of studies on 22 combinations of shelterbelt trees at the Mandan, North Dakota, Field Station as follows:

> "Wide differences of opinion prevail on the question of spacing..... Most of the opinions advanced are in favor of wide planting. Many recommendations are based more on theory than on actual fact, the assumption being advanced that the drier the area, the more room the trees need to survive. The recommendations of spacing distances based on actual data are generally in favor of close distances. Close distances are 4 x 4, 4 x 8, and 8 x 8 feet. Wide distances are 12 feet or more between rows."

Dave Olson feels, and I agree with him, that some of the confusion which surrounds the subject has arisen from attempts to apply a single formula to all of the widely varying soil and climatic conditions which exist on the Plains and to the many purposes for which trees are planted. It is doubtful if one should compare an orchard in the southeastern part of Nebraska, which is growing on comparatively steep, fine-textured soils, with a shelterbelt, which is planted on fairly level, loose-textured or sandy soil and an average annual precipitation of 16 to 20 or 25 inches. In the

first case a comparatively low-growing, widely branched tree is desired so that fruit, which is exposed to the air and sun for easy spraying and proper ripening, is developed. In an orchard, culture practices are employed which leave large areas of the soil exposed to the sun and wind. In some cases the exposed soil is carefully cultivated, in others a cover crop of grass, alfalfa or the like is grown. If the soil is clean cultivated, evaporation of moisture from the soil is encouraged; if a grass or other cover is permitted a great deal of the available soil moisture is used by the cover crop and thus is not available to the trees. In both cases only a fractional part of the annual precipitation is actually available to the trees. Under these conditions I can readily understand that tendencies will constantly be toward wider and wider spacing with emphasis on soil moisture absorption practices.

Our recommendations are for a different type of planting -- field shelterbelts -- under certain soil and climatic conditions which are in the main more favorable, at least during drought periods. Our recommendations may not be applicable to all sections of the Plains, but they seem to be the best for the section and general soil types in which we are planting, as disclosed by a considerable volume of research and experimentation both in this country and abroad.

The Forest Service recommends a spacing of ten feet between rows and six or eight feet between trees in the rows. This is a little wider than we probably would recommend if only technical considerations were involved, but cultivation of the trees devolves upon the farmer and spacing must accommodate common farm cultivation machinery.

Each general soil type raises particular problems in areas of limited rainfall. In the loose-textured soils, 16 to 20 inches of annual precipitation is enough to maintain trees because little is lost through run-off and evaporation, and if forest conditions are established practically all of the moisture received each year is reserved for the trees. Trees planted in the harder soils, on the other hand, get considerably less of the annual moisture supply, because run-off and evaporation are at their highest there. In this connection it is interesting to note that test plantings at the Mandan Station do exhaust the soil of all available moisture each year, yet the shelterbelt trees which are adapted to this region apparently do not suffer ill effects.

Information contained in U. S. Department of Agriculture Circular No. 344, published in 1935, seems significant. This circular reports on a study of a number of old groves in east central North Dakota, where normal precipitation was 16 to 18 inches annually. Groves on sandy soil and spaced so that each tree had less than 40 square feet of growing space at the time of planting (ours have 60 to 80 square feet) were generally in healthy, thriving condition. Groves on fine-textured soils but with similar spacing were found to be in appreciably better condition than where spacing was greater, and the condition of the more widely spaced groves on both sandy and hard soils was about the same. Specifically this bulletin states:

> "Wide spacing by encouraging the growth of grass, the removal of humus by the wind, and more drying of the soil, has apparently

brought about a higher current rate of mortality in the recent drought years than occurred in groves in which the space per tree was 40 square feet or less."

While it is true that wider spacing and fewer trees may be advisable for some types of tree plantings in areas of limited precipitation, it is not the key to greater success in plantings such as the shelterbelts. In approaching a planting problem, the composition of the planting as a whole, not the individual trees, should be considered carefully. Instead of the heavy-crowned trees characteristic of the orchard-type planting, with each tree transpiring tremendous amounts of moisture from its entire periphery, we aim at forest characteristics wherein the energy of the area is distributed among more trees with resulting smaller crowns which in the aggregate throw off no more, and perhaps less, moisture by transpiration than is true of the orchard-type planting of like area.

Aiming at the establishment of forest conditions, we strive to close the canopy of foliage as quickly as possible to shade out weeds and grass, which otherwise rob the trees of moisture, and to reduce evaporation, and to do away with the need for cultivation. The experiments at Mandan clearly demonstrate that green ash will grow satisfactorily in a spacing distance of 4 x 4 feet when planted in two adjacent rows and in a distance of 4 x 8 feet when planted in single rows between faster-growing species. Boxelder in these experiments showed a preference for spacing distances of 4 x 8 feet, although satisfactory growth and survival were obtained in distances of 4 x 4 and 4 x 8 feet.

The forest conditions developed by our composition have other distinct advantages. While the foliage shades the ground to keep out weeds and grass and reduces evaporation, the leaf mold and other forest litter on the ground increase the penetration of rainfall. The forest composition develops dominant, co-dominant, and suppressed classes of trees, exactly as is found in natural forests. In normal times, all of the trees progress according to the ability of the site to support them, but in drought periods the suppressed trees die and thereby leave for the remaining dominant and co-dominant trees more nearly their usual supply of moisture.

In addition to the experiments carried on near Mandan, North Dakota, the Bureau of Plant Industry has planted demonstration farmstead shelterbelts and conducted studies for 25 years in areas where the annual precipitation averages from 17 inches down to as low as 12 inches. Still it recommends even closer spacing than the 6 or 8 x 10 feet which is our standard. Results of their studies, both at Experiment Stations and on farms, indicate better survival and growth may be expected in shelterbelts with spacing 4 x 8 or 8 x 8 feet.

The Canadian Forestry Service in its shelterbelt program on the prairie provinces of Alberta Saskatchewan and Manitoba universally recommend initial spacings of 4 x 4 feet with thinnings after 20 to 30 years. Their recommendations are based on 37 years' experience and after distributing more than 150 million trees to prairie farmers for shelterbelt purposes.

Our present spacing is a compromise, retaining what we believe are safe limits of good forestry practice but at the same time going as far as we can to meet the wishes of the farmers. Should we be wrong we still have the opportunity to make thinnings which can be more readily done than later thickening when spaced too far apart. However, the recent experiments at the Nebraska State College in cooperation with the Soil Conservation Service as reported by Drs. Dooley and Russell whereby more emphasis is being placed upon the importance of reduction of evaporation and value of mulch make our case for the closer spacing stronger than ever.

- John L. Emerson, Nebr.

RECORD THE EVIDENCE

Is it possible that the shelterbelt program will excel the original expectations and accomplish even more than was hoped for at first? In the bulletin on "Possibilities of Shelterbelt Planting in the Plains Region" we find the statement, "The height of shelterbelts will be about 40 feet on the average." The Mangum District cut a cottonwood this winter for the purpose of making cross-sections, and after it was felled the tree was measured and found to be 39 feet 6 inches. It was not an exceptional tree but one of average height for that species in the belt.

We can quote further from the bulletin: "One point should be clearly made here that most of the advantages that accrue to the surroundings from the presence of a row or grove of trees can be traced either to the trees' checking of run-off or to their wind-stilling effect. . . . The most remarkable effect, perhaps, is seen in the lowering of the evaporation rate in a sheltered area at one of the Russian experiment stations. Humidification of the air does apparently occur to a slight extent, but evaporation is checked in much more pronounced fashion, and the inference is strong that a lowering of wind velocity is the cause. The increased expectation of a fair crop yield in a dry year under shelterbelt influence may find part of its explanation on this same basis."

E. A. Kirk of Mangum had a field of cotton this year protected on the south and west by shelterbelts Oklahoma suffered from extremely hot dry winds, from August 29 to September 10, which did severe damage to all crops and especially to cotton. Thirty-eight acres of Mr. Kirk's cotton were damaged by the hot dry winds, this area producing 23 bales. The 10 acres which were near the shelterbelt and protected by the trees produced 9½ bales. Mr. Kirk said, "Some of that cotton grew as high as my head and it never did that before. The trees have stopped the blowing and I don't have to replant. All of my neighbors had to replant at least once this year."

This year will afford bountiful opportunities for field men to observe and record interesting and important data which will be of great benefit to the Project in future years and will help in the revision of standard practices. Every field man in the Service will observe some interesting points in the conduct of his regular duties. Some of these will be unexpected and may seem of little or no importance. These should be recorded, however, and if the same things occur over a large area or reappear, under similar circumstances, in later years they may be of considerable importance to the Project.

- Howard Carleton, Jr., Okla.

SOUTHERN PERSONNEL AND THE TRAINING CONFERENCE

All aboard for Oklahoma City! Our sleek, green panel swung smoothly onto the "Joad Trail" and headed east out of Shamrock to the big city.

Next morning, Morgan, Klein, and myself (of the Cap Rock Patrol) joined the Kansas Brigade and the Oklahoma Division in a great building capable of holding many bales of shingletow. There, under the expert ministering of Bill Ihlanfeldt and Walt May, our eyes lost some of that wild plains gleam and the Pierces of Kansas, the Pfaenders of Oklahoma, and the Goldbergs of Texas became merely Fred, Max, and Hy.

Painlessly and efficiently "Prof." May conferenced and reconferenced us until before we knew it we were leading the group in a conference ourselves. With the poise of professionals, we were throwing overhead questions, breaking up side discussion, and insiduously channeling the experiences of all into the development of our topics.

Proudly we fluttered our new wings before the benevolent circle of "Big Shots," who beamed down on us and infrequently "spoke a piece." "Multiple-use" topics which served admirably as practice for training and at the same time were derived from problems common to all, were used to double advantage.

Enthusiastic over the success of the training, the group voted a resolution expressing appreciation to Region 8 for the loan of "Prof." May.

As we sped west next morning to our stations along the Cap Rock, each of us had the confidence of the little boy who had learned to whistle through his teeth for the first time.

Said Klein, "When are you going to try it out?"

Replied Morgan, "At the next 26a meeting."

- Thomas C. Croker, Jr., Tex.

SHELTERBELTS VS. SNOW FENCE

A new angle has recently come forward as a possible stimulus to shelterbelt plantings in Platte County, Nebraska.

The township road supervisors in one township of Platte County have noticed the value of 10-row shelterbelts planted on the north side of the roads in withholding snow from drifting into the roadway. They were so impressed with the effectiveness of one-year-old belts in holding snow out of the roads that they are considering paying $20 a half-mile to all farmers who will plant a shelterbelt on the north side of a road.

The supervisors figure it costs them $1.10 per 100 feet of snow fence to erect and remove the snow fences each year. This is in addition to the initial cost of the fencing and the continual upkeep expense. Consequently they reason that $20 a half-mile for shelterbelts would be much cheaper than snow fencing over a period of years.

I say they are "considering" the plan; it hasn't materialized yet, but if and when it does I'd hate to be a township supervisor in an adjoining township. He is going to have a lot of "heat" turned on him.

- E. Garth Champagne, Nebr.

REBUTTAL IN THE DEBATE ON CONIFER SURVIVAL

Reference is made to Mr. Ziegler's response (January issue of PLAINS FORESTER) to my article (October issue) concerning conifer survival.

Most of the information concerning the history of certain successful conifer plantings which Ziegler imparted only served to substantiate my statement that successful conifer plantings thus far obtained have come more by accident than design. Proof of this lies in Ziegler's admission that none of the histories of his successful plantings had anything in common except that the soil moistures happened to be favorable at the time of planting.

Ziegler has pointed out that puddling conifer roots and planting in lister furrows should be recommended practices. Neither of these expedients has been approved by the Regional Office for administrative use because previous observations have shown that the disadvantages that accompany them more than offset the advantages.

Concerning the practice of puddling the roots of conifer stock, studies in other Forest Service nurseries have proved that such a procedure has no value in aiding survival. This conclusion is based on observations that bare-rooted stock can be protected by proper handling which makes puddling an unnecessary practice. Puddling tends to disguise the loss of moisture from the tree roots because of the nature of the puddling material. It acts like an extremely voracious wick, drawing moisture from the tree roots to preserve its own plasticity. Even though the puddling matrix appears to be sufficiently moist, there is no assurance that it is not remaining so except at the expense of the moisture within the roots themselves. Furthermore, puddling tends to glue the roots together, making them difficult to spread in planting. As a consequence, the tree is poorly anchored and often is ground off by shipping in the wind.

The practice of planting in lister furrows is excellent in theory but likely to fail in practice. It is estimated that one-third of the losses in conifers is due to faulty cultivation. The major factor in this cause of loss is from covering the trees with soil. Unless extremely careful cultivation is genuinely assured, which is seldom the case, planting in lister furrows should not be done. The use of grape hoes for the cultivation of rows planted in furrows may prove successful in keeping the trees from being covered. Where careful cultivation of this sort cannot be assured, a more simple and expedient method is a critical attitude toward soil moisture and the use of rows of cover crop along the conifer row.

- Alba H. Briggs, R.O.

BOUNTY SYSTEM YIELDS MUCH JACK, SOME RABBITS

On January 1 the Kearney County (Nebraska) Board offered a bounty of five cents for each pair of jack rabbit ears turned in to the county ACP committee. Early in February the bounty was withdrawn when it threatened to break the county treasury. The farmers of the county collected $1,060 bounty on some 21,200 jack rabbits, one rabbit to every 16 acres in the county. This accounted for only about a third of the rabbit population, however, while before the bounty system was used cooperative rabbit hunts on 63 sections accounted for some 3,000 rabbits.

From the standpoint of efficiency and economy, the bounty system never accomplishes the desired control. There is no question that a small percentage of the scalps were secured in surrounding counties, for one fellow admitted to one of our men that he had sold rabbit scalps to a resident of Kearney County.

I am confident that the money expended would have accomplished far more if it had been used in carrying on a cooperative poisoning campaign in the county. The history of the bounty system proves that it only accounts for the increase and very seldom interferes with the breeding population.

- Carroll F. Orendurff, Nebr.

KEEPING RABBIT HUNTERS INTERESTED

"The McCook County Hunt Club," rabbit hunting organization at Salem, South Dakota, I believe, has made use of the proceeds of a rabbit drive in a manner that may have wide appeal as a means of sustaining enthusiasm for the sport.

This hamlet developed the rabbit-hunting fever in December and accounted for 1,700 "jacks" in three shelterbelt hunts. Prospects of oyster stews, card parties and other usual forms of entertainment following hunts had begun to pall, however, so the "boys" decided something unusual in the way of entertainment was needed.

The local theater was rented "lock, stock and basement" for an entire evening, therefore, and a group of eight sports reels contracted for. These, with a few reels of entertaining A.A.A. material, furnished an evening of fine diversified entertainment for the 250 who were present. The high light proved to be the short talk by State Director Ford, spiced with flashes of typical Ford humor, during which he showed a series of lantern slides illustrating comparative shelterbelt growths since inauguration of the Project. The audience was decidedly appreciative.

Following the show, all present enjoyed an abundant feed in the theater basement.

It was noticeable that later comments seemed to center mostly on the shelterbelt slides and the remarkable developments they portray.

And then: "When's the next hunt?"

- Howard J. Martley, S.Dak.

IF WINTER COMES, CAN SPRING BE FAR BEHIND?

Ice boats skimming over the lakes, skaters stamping their feet or huddled around the fire to get warm, streets blocked off to automobile traffic so that youngsters might coast in safety, plumbing frozen in houses, broken mains in the streets. It all reads like a typical South Dakota winter. Actually all of this happened in Texas, and not just for one or two days but for nearly a whole month. Detailers from the North have had no opportunity to get homesick. They have been too busy trying to keep warm.

To say that this has disrupted planting schedules in the South is plain understatement. Actually it has wrecked them, and from all appearances our planting season will not be a great deal longer than that enjoyed in the

North. All of this of course has created beautiful headaches when it became necessary to maintain ratios. (As a matter of fact, in order that the northern half of the Project might fully appreciate how the southern half has lived this winter, we are seriously considering the detailing of many of our personnel to the North next winter so that they may enjoy winter sports there, now that they have become accustomed to them.)

How about it, Ford and Cobb? Can we make a deal?

- W. E. Webb, Texas.

ELLA MAE GOES TO MEETIN'

When Aubry Kirk invited me to attend a meeting at Willow Creek schoolhouse the other evening -- I was on a files housecleaning detail at Mangum -- I was thrilled. I had never attended such a gathering, and being somewhat a stranger in those parts I expected to see no one there whom I knew. All my old shelterbelt friends were present, however, -- Ed Smith, the Lackey brothers, Jess Parr, Frank Babek, Mr. Tatyrek (always called him Taterreck, but learned his name has a much fancier pronunciation) and numerous others. Friends whose shelterbelts I had helped raise -- on paper -- some from the lease and option contract, SBP-1 and 5 and status book stage, through the picture-taking phase, up to the present when some of the trees are more than 30 feet tall. Attendance was very good -- about 55 in all -- considering that it was prayer meeting night, there was another meeting, also, and a number of cases of serious illness.

Conference procedure was followed, Howard Carleton leading the discussion. Lantern slides were shown, and I couldn't help noticing the amazement expressed on the faces of some of the group when views of some of the older plantings, like the Doughty and Barker belts, were flashed on the screen. I noticed particularly the Lackey brothers, right in front of me and especially enthusiastic over the slides and Howard's remarks. They kept nodding their heads and soon I caught myself doing the same thing -- it was all I could do to keep from stomping my feet and saying "Amen."

Ed Smith, who has plantings of his own and some put out by the Forest Service, said "I never have to replant my cotton any more since the narrow belt in the middle of my field grew up to 16 feet high. The belt I planted in 1936 is already large enough to stop the drifting sand, and it helped during the hot winds of September this last year. I can plant wheat or rye right up to my large cottonwood trees which are 12 years old and do not get any losses. If I sow a row crop I have to drop back far enough to allow for the shade since the crops will not grow under the shade."

Frank Babek, who has two shelterbelts and is one of our outstanding cooperators, entered into the discussion several times, enumerating the benefits which he felt he had received from his plantings. Mr. Tatyrek also described the benefits derived from his planting, as did other cooperators. Not having had my notebook with me and my memory not being the best in the world, I can not tell what each person said but I can remember a few of them.

The Lackey brothers each own 80 acres of land and their farms are separated by a 1936 shelterbelt. They said, "The field on the north does not blow out and it was not necessary to replant for the last two years.

We could also tell that the hot winds did not burn up the crop which was protected by the trees. The field south of the trees had to be replanted along the south edge this last summer and suffered from the burning winds of September. There was considerable blowing along the west side of the south field. We want a three-row belt planted on the south and west sides of the farm."

I hadn't realized that some of the younger plantings were also already furnishing protection until Jess Parr, who has a 1937 belt, stated at the meeting, "I planted 22 acres of cotton north of the trees. A sandstorm came up and cut out all but eight acres. These 80 rows were just north of the trees. I was not able to get a crop planted and established on that blow sand until July 22. I believe that when the trees get a little larger they will protect the entire field and I want a three-row belt along the west edge to stop the southwest wind from blowing out the crop."

The farmers also seemed interested in the intermediate belt program which Howard explained, and several indicated that they wanted to secure plantings of this type for their farms. I understand that on a number of occasions the farmers in this community have commented on the good work of Aubry Kirk and have indicated that they are seriously considering his suggestion to work out a community plan for intermediate planting.

Yep, I really feel that I've gone places since the day I attended a field meeting at Childress, Texas, in May of 1935, and stood back of one of the seedlings in the Brummett planting to make a "light" background for it while Mr. Perry took its picture.

- Ella Mae North, Okla.

(Alas and alack! How well I recall that picture-taking. It was a momentous occasion. I was about to embalm on celluloid for a goggling posterity the infant likeness of a tree which would one day bear upon its massive trunk a tablet identifying it as the very first tree planted in the Texas Shelterbelts. I quivered with apprehension lest something go wrong to spoil the shot, and thus lose to the world one of the great historic pictures of all time.

Imagine my joy, then, when the film emerged from its bath, perfect in every detail. There was my infant treelet, brave against the red soil of Western Texas, beginning its heroic march down the corridor of time. And since it seemed fitting to me that this historic scene should be graced by the flower of Southern womanhood, there beside the infant prodigy was Ella Mae, graceful, gracious, tastefully gowned.

But that is where I made my mistake. As an artistic triumph the picture is supreme; as an historical document it is a dismal flop. Viewers completely miss its import. While I wait with bated breath for some acknowledgement of its solemn significance, they fiddle with their ties and say, "Who's the good-looking dame?" - E.L.Perry, R.O.)

One of San Francisco's toastmasters' clubs is starting a speaking class for ladies. We might suggest as their next project a swimming class for ducks.

- California Ranger (Reg. 5)

A GOOD ACCIDENT RECORD

During the month of December, the Prairie States Forestry Project had fewer disabling accidents than any of the 10 Regions, the Forest Products Laboratory at Madison, and the NEFE Project. With an average of 1,887 workers employed during the month, only two lost-time accidents occurred on the Project. The frequency rate of disabling accidents on this Project for December, as computed by the Chief's office, was 8.38 per million man-hours. Our nearest competitor for top honors was Region 8 with an accident frequency of 10.13 per million man-hours. Frequency rates computed for other Regions range from 15.25 to 44.63 with an average rate of 28.38 for the Forest Service as a whole. Since the beginning of the current fiscal year, the Prairie States Forestry Project has had consistently good accident ratings, never being lower than fourth place among the 13 units reported.

Also, during calendar year 1939, this Project was second low in the Forest Service in the number of accidents resulting in claims against the Government with a total of eight claims. Only Region 10 (Alaska) had a better record in this respect, turning in only two claims. Considering the hazards involved and the greater number of automotive vehicles operated in some of the Regions, it is to be expected that the number of accident claims originating on this Project would be low in comparison. However, a total of only eight claims or an average of 1.33 per State is a good record and compares favorably with those established by the Regions in spite of our more favorable driving conditions and fewer vehicles.

Our safety record is something of which we can all be proud. It did not come about by chance. It is the result of thought, study, and a conscientious effort on the part of everyone concerned to keep accidents to a minimum. Considering the conditions under which we work, our accident record should be low. With a "safety-conscious" attitude instilled in the minds of all employees, there is no reason why we should not consistently have the lowest accident frequency rating of any branch of the Forest Service.

- Harold E. Swim, R.O.

SUCCESS STORIES ARE ALWAYS PLEASANT

Mary had her little lamb and the Eggle brothers of Cando have their shelterbelt. Frankly, I doubt that Mary's lamb received any more attention than the 3/8-mile shelterbelt planted for the Eggles in the spring of 1939.

Survival on this planting was 85 percent -- very good, considering that it was the last shelterbelt planted in this northernmost subdistrict last spring. The 15 percent loss was not due to lack of care but rather to questionable stock. The belt was cultivated seven times and hand-hoed often enough to get any weeds showing above the ground.

These folks really love trees and they have applied for an additional half-mile, the site already having been subsoiled and fenced by them in preparation for spring planting

It is mighty pleasant to the ear to hear the Eggle brothers praise the Forest Service for its part in the shelterbelt program.

- Clarence D. Schneider, N.Dak.

VERILY, SHELTERBELT PRODUCTS ARE MULTITUDINOUS

Cooperator Jones, on the way to his farm home from Childress, Texas, spotted a coyote stealing through a shelterbelt along the Garden Valley road. Poking his shotgun through the car window, Jones let go with one barrel. Hurrying out to retrieve his kill, with only one barrel of the gun loaded, he flushed a covey of quail in the shelterbelt just beyond the coyote. Pop, went the second barrel! Down came four quail!

Score 1 for the shelterbelts!

After a two-day trip during a real white winter blow, State Director Webb and son, Bob, returned with six quail taken from the shelterbelts in the Dunlap school area in Cottle County. They reported finding quail only in the belts. The quail were good. I know.

Score 2 for the shelterbelts!

The Texas organization regretfully said good-bye to Miss Louise Conrad, junior stenographer, who has been with the Unit since November, 1938. Termination of her services, as other Units probably know from similar experience, was caused by lack of administrative funds. Miss Conrad plans to spend a rather prolonged vacation visiting her sister in the Rio Grande Valley and her parents in Missouri.

Now and then, Mr. Kesh-ke-Kosh, principal chief of the Sac and Fox Tribe of Oklahoma, snuggles into his war bonnet and goes to the movies in Norman. But his friends are careful on such occasions to watch Mr. Kesh-ke-Kosh carefully because, if the movie's a Western or if perchance the producers have popped a brother Redskin into the picture, it is not unlikely that the big Sac and Fox will fly suddenly into a fearful rage -- so angry, in fact, that he threatens to scalp himself. He has just explained to us: "I always get an uncontrollable desire to scalp the director but he's never there. The worst ever was the show that had an Arizona Indian wearing a Sioux headdress, speaking Shawnee." On another occasion, Mr. Kesh-ke-Kosh investigated an Indian character who was acting very un-Indian indeed. His friends had quite a time with him when he discovered that this noble savage's name was Goldberg.--(Clipping from a recent issue of Collier's.)

Can this be the illustrious gentleman known to our regular readers as Hyman M. Goldberg of the Texas Unit of the PSFP? He sometimes speaks a gibberish which he calls Indian.

- Ye Texas Correspondent.

SPECIES IN OUR SHELTERBELTS WHICH ARE BEARING SEED

Last spring I began checking with the field men on species that have been observed to be bearing seed with the idea of preparing a list of such species at the close of the growing season. I find in reviewing my notes that it is a whole lot easier to reverse this and state that only a few species used on the Project have not borne seed, notably pines, junipers, bur oak, and possibly a few others. Perhaps the biggest surprises came in

finding apricot and black walnut bearing seed so early. In Oklahoma, the following observation was recorded: On one black walnut tree grown from seed direct seeded in the shelterbelt in the spring of 1936, 124 walnuts were collected. Mind you, a half bushel of walnuts produced four years from scratch on one tree.

This early bearing of seed in our shelterbelts has a great deal of significance to a program of this kind. When we started out, much emphasis was placed upon the importance of seed source. We were quite particular about latitude and longitude in zoning the areas for collection; not quite so particular about differentiating between upland and lowland trees; and comparatively little attention given to parentage in individual trees. I think that we all visualized such careful seed collection as an endless job. However now as we look back, how much better off we would have been for the future had our selection been more carefully done so that the five years of planting made to date would represent the best choice possible for our future supply. How much more simple the whole seed collection job would be if we were able to say that any seed collected from shelterbelts in Oklahoma, for example, for future planting in Oklahoma was of pure strain of the best we could obtain -- no thorny honeylocust, no questionable hackberry, no questionable strain of Chinese elm, etc. Consequently when the importance of seed source is emphasized in the future, we should not think of it ordinarily as a continuous expensive job saddled upon us in order to get the best results from our planting work, but as something we will be through with in five years' time, - like cultivation. In other words, careful selection not only assures better results from our planting efforts but establishes easily accessible future sources of selected seed. Already we are collecting large quantities of seed from our shelterbelts for nursery sowing. Many of our shelterbelts do represent excellent seed sources, and when these bear seed in sufficient quantities to collect for future production, careful analysis should be made of the records to see that we are collecting from the best. In some cases this may be quite simple. For example, in some years when seed crops were more abundant more careful selection was made, so we might find that all hackberry in a certain State or District planted in 1937, for example, was of the best. Consequently, 1937 belts in the future would be designated as the most desirable from which seed of that species should be collected.

Now that there is no longer much fun in hunting for new species bearing seed in our shelterbelts, I am interested in hunting first evidences of natural reproduction occurring in our plantings, i.e., naturally seeded by trees within the shelterbelt or carried from the outside to the forest conditions established by those shelterbelts. There are, of course, quite a number of species sprouting from the roots of established trees such as black locust, cottonwood, desertwillow, etc., but I am primarily interested in those coming from seed. I have to date found desert-willow and cottonwood sprouting from seed in our shelterbelts. What have you found? Who will be the first to show me bona fide evidence of a natural juniper seedling occurring in one of our shelterbelts, after planting?

- D. S. Olson, R.O.

(Editor's Note: Dave offers a $5 bill to the observant or lucky one who spots the first naturally seeded juniper.)

COOPERATION PLUS

New Rockford, North Dakota, has long been the center of activities of the North Dakota Wildlife Federation, and the Eddy County Chapter's annual meeting Friday, January 23, proved to be no exception. Howard L. Stone, President of the North Dakota Wildlife Federation, and a member of a five-man National Planning Council for the National Federation, is a local business man. Howard was, of course, present at the meeting and gave the group plenty of information. He stated that the Prairie States Forestry Project is going to be considered as one of the two projects to be backed by the National Federation in an effort to obtain support by Congress. In pointing out the strength of the National Federation, Howard stated that the Pittman-Robinson Act was passed upon recommendation by this group.

In his following remarks Mr. Stone told the group of 50 sportsmen that the Prairie States needed this work, and he urged every member to back the Project to the limit.

E. H. Mattingly of Jamestown, long prominent in conservation work in North Dakota, supplemented Mr. Stone's remarks with a summary of the fine work that was being done by the Project. He emphasized the need for trees in Central North Dakota if we were to solve some of the problems that were present.

Charles Yoder of Carrington, North Dakota, slated to be elected president of the State Federation in 1940, followed with considerable praise of the personnel in the PSFP. Before Yoder was through talking, his compliments had gotten into the "two-bit" class, which I accepted for the members of the PSFP as graciously as possible. All in all, aside from the routine business, the Prairie States Forestry Project came in for the lion's share of attention at the annual meeting of the most active Wildlife Chapter in North Dakota.

- Charles B. Waldron, N.Dak.

THE LOWDOWN ON THE NURSERY SITUATION

In discussing nursery production with commercial nurseries in Kansas, I have often raised the question as to the number of men engaged in the business now as compared with past years. In every instance the nurseryman to whom I may be speaking has assured me that the numbers were about the same. We have for some time doubted that anyone had adequate information on this point. Accordingly we secured the reports of the Kansas Entomological Commission, which include statements showing the number of commercial nursery certificates issued each year or in some cases each biennium.

A review of these reports shows that in 1908 the Commission issued nursery inspection certificates to 75 firms. In 1940 the Commission issued certificates to 260 firms. In 1908 there was no record made as to the number of plant materials of nurseries selling forest trees. In 1940, there were 190 firms listed as offering forest, shade or ornamental trees.

In 1917 in northern Kansas there were 15 nurseries listed as producing forest, shade or ornamental trees and in most cases a high acreage

of fruit stock was included. In 1918 there were 14 nurseries listed. This compares with a total of 32 nurseries in 1917 in northern Kansas and 25 in 1918.

In 1922 there were 2,604 total acres of nurseries in Kansas. In 1940 there were 2,154 acres. Both figures exclude State and Federal nurseries. In 1922 there were big acreages of fruit stock. In 1940 there are limited acreages of fruit stock.

- T. Russell Reitz, Kans.

(Editor's Note: Russell furnished a graph to show the number of nurseries from year to year, but since we are without means of reproducing it, it necessarily is eliminated.)

FROM YE EDITOR'S NOTEBOOK

Two unusually interesting reports were turned in to the Regional Office during the last month, one dealing with a demonstration tour and the other with an address.

State Director Ford of South Dakota spent eight hours exhibiting about 75 shelterbelts in the vicinity of Mitchell and Huron, and heel-in beds, to "Jack"-Andrews of Faribault, Minnesota, a member of the American Nurserymen's Association, and H. N. Dybvig of Colton, president of the South Dakota Nurserymen's Association. Reports Ford: "Andrews said that this trip had convinced him that adverse reports on the Project he had received from eastern nurserymen were false."

State Director Nelson of Oklahoma spoke at Oklahoma City before a meeting of land loan and holding agencies, whether private or government financed he did not indicate. His topic was "What Farm Forestry Can Contribute in the Plains Region." There were 104 present and the states of Texas, Oklahoma, Arkansas and Missouri were represented. "There was a great deal of interest in the shelterbelt program," says Nelson, whose message reached the ears of some from outside the shelterbelt states.

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Charles F. Pears, subdistrict officer at Casselton, North Dakota, has given the readers of two newspapers in his subdistrict a rather complete summary of shelterbelt procedure and planting, in a series of eight articles. The series required 82 column inches in each newspaper. The titles of the articles in the order that they were published are: Entry of the Forest Service Into the Plains States, Soil Erosion and Dust Storms, Values of Shelterbelts in the Plains Region, Wildlife as Influenced by Shelterbelts, Type of Trees Planted in Forest Service Shelterbelts, Reasons for Fencing and Cultivating Shelterbelts, Ground Preparation Prior to Planting a Shelterbelt, and Reasons for Concentrating Planting of Shelterbelts.

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For the first time in months we have enjoyed what most editors crave- a "backlog" of stories, meager as it is. We hesitated to tell you this because you scribes might ease up, and Heaven forbid that! But what we are driving at is that if your article is not in this issue it is not a sign of editorial disapproval but only that its publication is delayed.

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Many are the vicissitudes of the field men engaged in placing his story before the people, but L. H. Thorpe ran into a new one at Bordulac, North Dakota. While he was addressing a group of 45 persons on "shelterbelts and the AAA," a basketball game was in progress in an adjoining room. Interest in the address, Thorpe reports, was "just moderate."